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FLIGHT

JANUARY 1952
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MAGAZINE

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CESSNA 170B FOR 1952

R v. 37-38 1952

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Their Cessnas Make BUSINESS A PLEASURE!

J. PAUL NEAL, DES MOINES, IOWA. With his son, Paul Neal, Jr., and one secretary, Mr. Neal operates a business and investment realty company which handles commercial and industrial real estate, large farms and the like.

He and his son both fly . . . use their Cessna 170 constantly for personal contact with distant prospects, appraising and showing property from the air, taking color aerial photos of choice farms *and for hunting and fishing trips.* In the first year, Neal feels he paid for the 170 three or four times over—in deals he would not have tackled without the plane.

F. J. MEYER, MADISON, WIS. At 41, Mr. Meyer heads Red Dot Foods, Inc. . . . a $4,000,000-a-year potato chip and "party" foods business which he started with one potato chip machine while still in college.

Mr. Meyer purchased his first Cessna in 1946 with the express purpose of speeding up business operations — now owns a Cessna 170. He flies between sales branches and plants in six states and potato farms in Wisconsin, Alabama and Florida — attends many conventions and packaging shows —commutes by plane in the summer from a farm home in Northern Wisconsin. Last winter he flew to Mexico. Mr. Meyer says that without his 170 all of these things could not have been accomplished.

ANNOUNCING 1952's OUTSTANDING AIRPLANE

The New Cessna 170

Improved performance at a price far lower than any other 4-place, all-metal airplane. Refined control system for finger-tip handling and ease in all flight attitudes. Brilliant new custom finished interior, matched with dashing flightlined exterior in colorful trim.

...LAND SLOWER, SHORTER AND SAFER WITH 1952's OUTSTANDING AIRPLANE FEATURE!

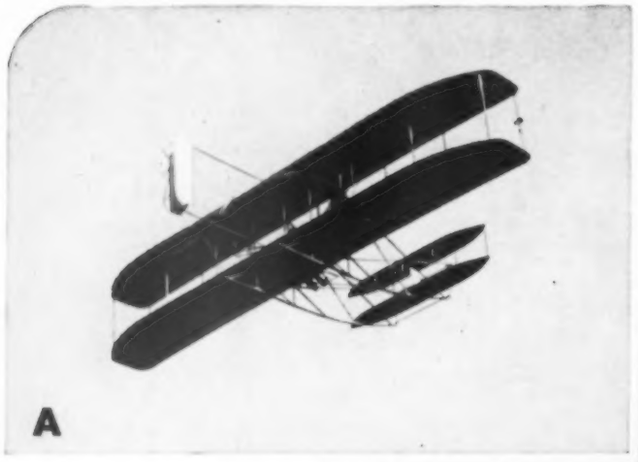
Now! **Land in *shorter* fields over tall trees and high-tension wires with new high-lift flaps.**

Now! **Take-off in a short space in *comfort* over high obstacles with the Cessna 170 equipped with the new high-lift flap.**

Now! **The combination of high-lift flaps, all-metal construction, Cessna's patented safety steel gear, over-all dependability, backed by the know-how of skilled craftsmen, make the new 170 the best airplane your money can buy.**

Phone your Cessna Dealer today for a demonstration of the added advantages built into the new Cessna 170, or write Cessna Aircraft Company on your business letterhead for full information on the New Cessna 170 and the Cessna 190 Series. CESSNA AIRCRAFT CO., Dept. 11, Wichita, Kansas.

DO YOU KNOW THESE FAMOUS PLANES?


A

B

C

D

A. The beginning of the American Air Forces! In this plane, in 1909, Orville Wright fulfilled a U. S. Army contract by flying over the Fort Myer parade grounds for 1 hour, 12 minutes and 40 seconds.

B. A 1911 photograph of the first "hydro-aeroplane", developed by Glenn Curtiss, for which he was awarded the Langley medal of the Smithsonian Institution.

C. The "Winnie Mae", piloted by Wiley Post, completed a record globe-circling flight in 1931, traversing 15,474 miles in 8 days, 15 hours and 59 minutes.

D. Traveling at a speed of more than 1,000 miles per hour, the jet propelled D-558-2 Douglas Skyrocket recently surpassed all previous altitude records for any type of aircraft.

AS THE AVIATION INDUSTRY unfolded its wings, another sister industry was developing with it. The story of new airplane designs and new, better, more powerful engines is paralleled by the development of new, improved airplane fuels and lubricants.

Phillips Petroleum Company has long been one of the country's largest suppliers of aviation fuels for commercial and military use. And now Phillips is ready with new fuels for turbo-props and jets in addition to its capacity for producing tremendous quantities of 115/145 grade aviation gasoline. For dependable aviation products, call on Phillips.

AVIATION DIVISION, PHILLIPS PETROLEUM COMPANY,
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Phillips 66

AVIATION PRODUCTS

NEW OFFICERS OF NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS for 1952 are, left to right: C. E. A. Brown of Ohio, president; Joseph K. McLaughlin of Illinois, first vice president; Frank Wiley of Montana, second vice president; and Hubert H. Stark of West Virginia, third vice president; L. V. Hanson of South Dakota is treasurer, and A. B. McMullen of Washington, D. C., is executive secretary.

NEW LEAR LTRA-6 combines in one small unit a tunable VHF receiver, VHF transmitter for 12 frequencies, and low frequency receiver. Details are available from Lear distributors or Lear, Inc., 11916 W. Pico Blvd., Los Angeles.

AIR Report
Significant Trends and News

LOOK FOR INTENSIVE CESSNA DRIVE FOR MARKET DOMINATION during 1952-53. Emphasis will be on 4-pl. Model 170B this year, with other new developments not slated until 1953. Materials allocation schedules mention Model 180 and Model 310, but factory is mum about both. They will use Continental E-225C engine. Long-awaited postwar Cessna "twin" will become a reality as Beech Twin-Bonanza and Aero Commander are delivered. Factory will say nothing about it at present. All shrewd Sales Manager Don Flower will say is this: Cessna is doubling its sales force, is increasing sales promotion including advertising 1,000 per cent.

FIRST AERO COMMANDER PRODUCTION MODEL has been flown to Michigan for installation of a custom cabin interior. Others will follow it there. FLIGHT Magazine staffers visiting Oklahoma City factory last month met General Motors' famous "Boss" Kettering on the Aero Commander assembly line. He dropped by in his Grumman Mallard, "The Blue Tail Fly," and told us he had put up a deposit for a Commander.

ATOMIC AIRCRAFT ENGINE WORK for the USAF will be done by Pratt & Whitney Aircraft Division of United Aircraft Corp., under a new contract.

TURBO-PROP ENGINES ON LOCKHEED SUPER CONSTELLATIONS will be tested under a new Lockheed contract from the Navy. Engines are Pratt & Whitney T-34's. Two Navy R70-1 Super Connies will mount them. Result is expected to be 35,000-lb. payload and long-range cruising speed of 394 mph. at 25,000 ft.

NEW DOUGLAS DC-7 FOR AMERICAN AIRLINES will be powered by four Wright Turbo Compound engines rated at 3,250 hp. each. Twenty-five costing $1,590,000 each have been ordered by American. DC-7 will be 40 ins. longer than DC-6B and about 50 mph. faster, with a top speed of 400 mph. and 363-mph. cruising speed. Gross weight of 116,800 lbs. compares with DC-6B's 100,000 lbs., and 60-passenger cabin seats 8 more than DC-6B.

(Continued on page 30)

FLIGHT MAGAZINE
Including SOUTHERN FLIGHT and MODERN AIRPORTS

JANUARY, 1952 VOL. 37, No. 1

COVER: This month's cover shows the 1952 Cessna Model 170B announced in this issue on pages 12-13. Biggest improvement over last year's Model 170A is a lift flap. Note new paint trim.
—(Cessna Photo.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager, P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas
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Incomparable

a pretty girl

It is a commendable thing, indeed, for a young lady to arise bright and early on New Year's day to compose her good resolutions. However, there's a limit to how far one should go in such matters, and we heave a sigh of relief that Barbara Phillips has decided to strike out that last entry on her list. She is 21, has green eyes and brown hair, likes to fly, and raises Boxer dogs.
(No. 4 in a series of pretty Dallas girls discovered and photographed especially for Southwest Airmotive).

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You Get on The Ramp at
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Just among ourselves

UNIFICATION IN OUR OWN BAILIWICK

WE note with genuine interest the formation of a new aeronautical organization to be known as the Aerial Applicators Association, a non-profit group incorporated last month in Oklahoma City by some of the nation's most successful aerial applicators. Although the National Aviation Trades Association and various state groups of flight operators engaged in aerial dusting and spraying have attempted organized work in this field, very little has come from their efforts. No doubt a strong, national, non-profit, professional organization serving this rapidly expanding and profitable phase of aviation has a definite place in the scheme of things.

Coincidental with this announcement is word that the National Air Council will liquidate and quit business. On the other hand considerable midnight oil is being burned to rehabilitate the almost defunct National Aeronautics Association, following recent unsuccessful attempts to merge the NAC with the NAA. As most of the readers of these pages know, the National Air Council was formed originally as the Air Power League at the behest of General Hap Arnold, who foresaw the tragedy of disarmament at the close of World War II and hoped for a strong group of business and professional leaders both in and out of aviation to keep the fires burning for adequate air preparedness. That the National Air Council is retiring from the scene might be taken as evidence that the original sponsors of the organization feel the job has been accomplished and there's no further need of it. Only time will prove or disprove that.

Practically all the other going-concern aviation organizations are vigorously working to strengthen themselves—our pure trade groups, even the consumer groups. It's a good sign. For the long and difficult road winding down through the years has been splattered with the wrecks of half-baked, impotent and completely unnecessary aviation societies, downtown hurrah clubs and phony trade groups that couldn't have served their memberships even had their leaders known how. There's no room for any more five-dollar aviation organizations. Let the here-today-and-gone-tomorrow aviation enthusiasts remain to holler and scream with the Lions, the Eagles or the Elks. And the opportunistic, professional trade association secretaries looking for an easy berth among a bunch of suckers might well go with them!

For the past two years top leaders of the principal aviation organizations in the United States have been meeting together in a unique group known as the Conference of National Aviation Organizations, which takes no votes, passes no resolutions, seeks no publicity, collects no dues and takes no action. The free and frank interchange of opinions within this Conference, plus the discovery of many items of mutual interest heretofore unrecognized because of incredible self-isolation, have ushered in a new era of cooperative effort and understanding in domestic aviation. From all appearances it would seem that aviation organizations representing so many heterogeneous interests have finally grown into maturity. While the Conference of National Aviation Organizations is still feeling its way, so to speak, and the formula is a strangely new one to aviation, the cooperative spirit and obvious desire to discuss vital matters of aviation policy speaks mighty well for the Conference membership.

We believe that 1952 will be an important year of decision for the aviation industry. More than ever before we must hang together or we might easily hang separately. If ours is not to become a 100 per cent munitions industry — accomplishments in 1951 lead us to the conclusion that we need not let it happen here—all aviation trade and industry groups must not only strengthen themselves but work even more diligently together and with the government agencies deeply involved in policy matters.

If you do not now belong to an organization representing your basic interests in aviation, now is the time to pause and consider participation. With all the effective and necessary aviation groups now trying to pull together on the national scene, there is plenty of justification for your membership that did not exist before. Having been mighty close to the aviation organization picture for the past 18 years we can well appreciate any amount of skepticism you as an individual or your company might hold toward any and all aviation groups. But the turning point has been reached. Of that we are certain. This is the year to get off the side lines and into the swim.

A NATIONAL OPPORTUNITY

THIS nation will be missing the boat completely if we fail to send a substantial delegation of American gliding and soaring experts to the 1952 World Championship Soaring Contest to be held in Spain next spring. The responsibility for seeing that this is done belongs to the U. S. military, the U. S. State Department and the Civil Aeronautics Administration.

Hundreds of European pilots, aeronautical engineers, designers, meteorologists, physicists and researchers will be on hand to participate in the flights and to exchange papers at the scientific sessions held during the contest.

U. S. soaring pilots and designers have recently proven their outstanding capabilities in the realm of motorless flight by capturing the official international altitude record of 42,000 feet, the international distance record

(Continued on page 41)

NOW it's the Lear LTRA-6

VHF RECEIVER

New type high-stability tuner... maintains greater accuracy of calibration... better signal-to-noise ratio... stabilizes pip indications in Lear Omniscope®

New low-noise input circuit... brings in weak signals with far greater effectiveness... provides greatly enhanced sensitivity

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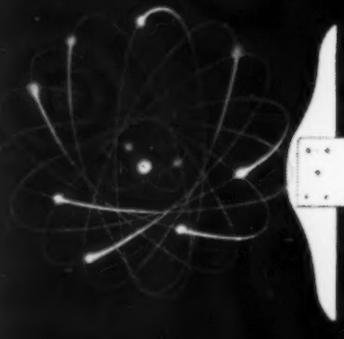
Convair pioneers 1st atomic plane!

It's no longer just theory. Convair's exceptional engineering talents will be employed to harness *atomic power* to aircraft *performance!* The U. S. Air Force has awarded Convair the contract to develop America's first atomic-powered airplane, and General Electric—working jointly with Convair—will develop its nuclear propulsion system. The job will be done... adding another first to the already impressive list of Convair's achievements in designing aircraft of the future. This contract is still another tribute to Convair research-engineering-production teams... and to the far-sighted corporate management which makes A-plane development possible!



ENGINEERING TO THE "Nth" POWER... literally! The Air Force, Atomic Energy Commission, Convair and General Electric are working closely together to advance America's defense program. Always the goal at Convair is: the projection of power to achieve the *maximum degree* of performance. The maximum, the Nth degree of air power... *the Nth Power—Atomic Power!*

ENGINEERING TO THE Nth POWER

In the air it's

CONVAIR

CONSOLIDATED VULTEE AIRCRAFT CORPORATION • SAN DIEGO, CALIFORNIA • POMONA, CALIFORNIA • FORT WORTH, TEXAS

New paint trim distinguishes Cessna's 1952 version of its popular 4-place Model 170. Its most important improvement is the high-lift NACA slotted flap, barely visible here but shown in the photo below. Flap was adapted from Cessna's liaison airplane, the L-19, used by the Army. —(Cessna Photo.)

Cessna's New 170B

By Bob Wemple and Tom Ashley

CESSNA'S 1952 version of its 4-place Model 170 is being introduced to the public this month, featuring among several improvements a high-lift flap which was developed and service-proved on the company's military L-19 liaison airplane. Steeper and slower approach for short-field landings, steeper flight path in climbs and a 42-mph. power-on stalling speed are possible with the new flap.

Other 1952 improvements include:

Use of the liaison-model wing along with the flap, this wing having more dihedral than the one formerly used and consequently some additional stability.

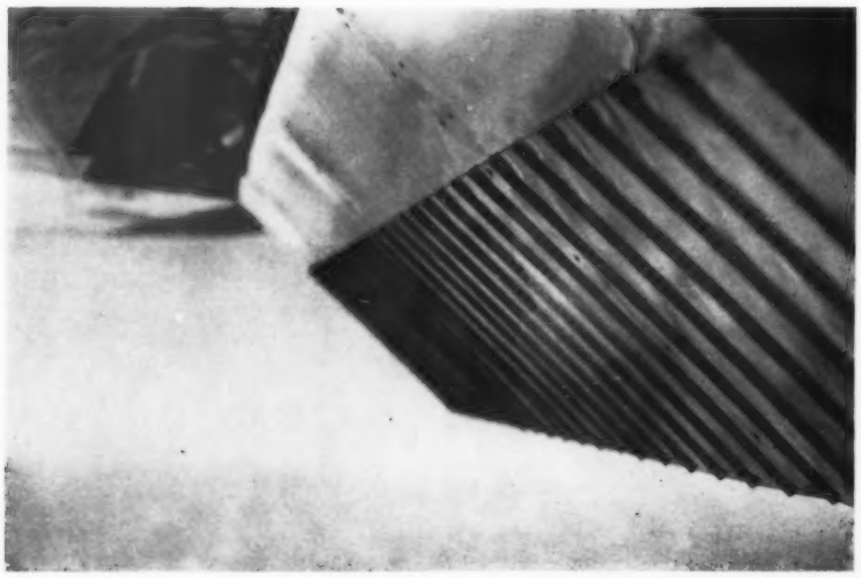
"Softer" control pressures, especially on the elevator, to equalize the pressures on aileron, rudder and elevator controls.

New paint striping.

More soundproofing for a quieter cabin.

Increased comfort from the use of "super soft" foam rubber in the seats and seat backs.

New interior upholstering with



Here's what full flap looks like in flight from the Cessna 170B. Full-down position is 40 degrees. Flap area is 21.2 sq. ft.—twice that of last year's Model 170A. —(FLIGHT MAGAZINE Photo.)

generous use of genuine leather at wear points.

Arm rests for the rear seat.

New "refrigerator-type" weather stripping around the doors which completely seals the cabin.

All these make the 170B, as the 1952 version is designated, a better airplane than the 170A—better, that is, in short-field capabilities, handling and comfort. However, its cruising speed remains about the same, although actually the 170B's cruising speed can be accepted as "over 120 mph." whereas the 170A's was right on 120. Gross weight remains the same at 2,200 lbs., but empty weight has been increased 20 lbs. and is now 1,205 lbs., giving a useful load of 995 lbs. The same 145-hp. Continental engine is used, along with the McCauley fixed-pitch metal propeller used on the 170A. The price remains the same, being $7,250.

For a preview of the improved model, we went to the Cessna factory in Wichita, Kansas, going through the plant first and then hopping the 170B to see how it handled.

Going into Wichita, we couldn't help but noticing how military aviation has all but taken over. Jet trainers and Boeing B-47 jet bombers are literally all over the airport area. Even on the Cessna turf field, olive-drab liaison Cessnas outnumber civilian aircraft. During 1951, only a small percentage of Cessna's production was in civilian airplanes. But this civilian airplane business was about the same in dollar volume as it was in 1950. What this means is that Cessna has held its own in civil aviation while tremendously expanding its military activities. During 1952 the firm will not only hold its own but will actually strive to expand its civilian aircraft production. So says Don Flower, sales manager, whom we found to be the most optimistic person we have encountered in civil aviation during recent months.

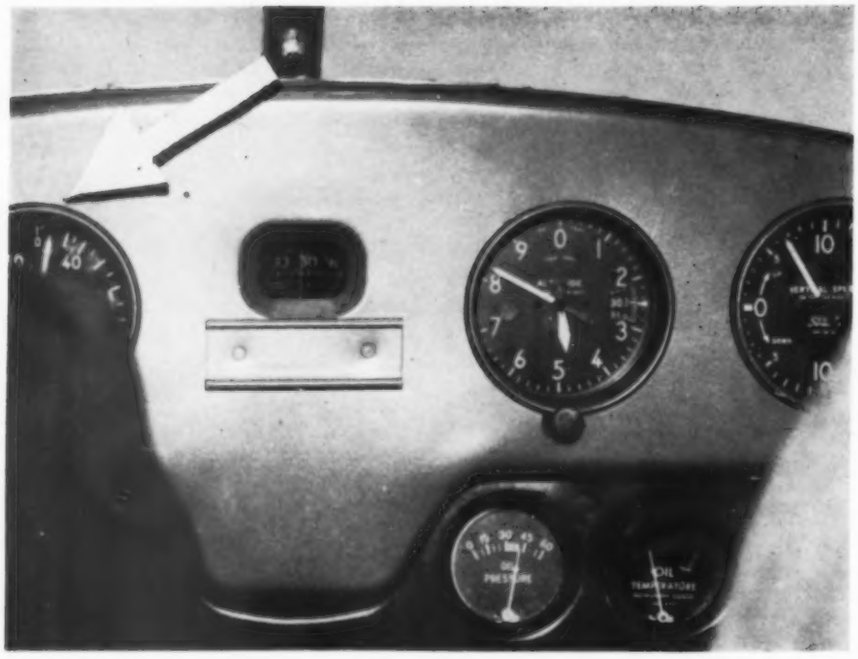
"Every indication is that 1952 will be a good year for lightplane sales," Don said. "The Cessna sales organization will get out and do its best selling job, believing that we will be able to deliver every airplane we can sell. We have made aggressive sales plans for 1952 and we have already made material commitments to support greater sales efforts."

Don was obviously under-stating his case, for we detected even more optimism than this statement would indicate. So we asked for more.

"We are launching the biggest sales promotion campaign yet undertaken," he went on. Then he broke the ice at last.

"In fact," he said, "we are doubling

Trying out the new Cessna 170B, Author Wemple hopped it to Hutchinson, Kansas. It is shown at right from that city's beautiful new terminal restaurant. One of the spectators is shown below stepping from the new plane after having a look at its roomy interior.
(FLIGHT MAGAZINE Photos.)



WHAT'S WRONG WITH THIS PICTURE? It was made in the 1952 Cessna 170B and in flight, as the sensitive altimeter and engine instruments show. Although the air speed indicator is knocking on Zero (arrow) the climb indicator at right shows the airplane is climbing at about 690 fpm. It happed just after entering the stall but before the nose began to settle gently toward the horizon. Steepness of the wing's angle of attack had rendered the air speed indicator's air intake ineffective below 40 mph. Pictures below show the new Cessna high-lift flap in take-off and landing during recent tests on a float version of the 170B.

—(FLIGHT MAGAZINE Photo Above, Cessna Photos Below.)

our factory sales force. Cessna has never fallen below its 1946-47 sales and service efforts and its cooperation with its distributors and dealers, and now Cessna will double these efforts."

Now we could see that Cessna really means business with its optimism. How else could it double its sales force?

Sales emphasis will be on the 170. About 2,500 of these 4-place airplanes have been delivered to owners since the model was first marketed in 1948. It is interesting to note that the liaison airplane purchased by the Army and used in large numbers by the ground forces was developed from the 170; interesting because it is from the liaison version that Cessna now obtains its biggest improvement in the 1952 civilian model, the 170B. This is the high-lift flap. Along with the flap, the 170B also utilizes the complete liaison wing, which has the same area as the 170A's wing but incorporates more dihedral and is "washed out" more at the tips. This wing is not interchangeable with that on the 170A.

Lift Flap

The high-lift flap on the Cessna is a kind of Fowler flap in that it travels slightly rearward while being extended (the Fowler travels farther rearward, enough to extend behind the trailing edge considerably). It is an NACA Type 2H slotted flap. Extremely high angles of attack are possible before the wing stalls, this slot utilizing the air to keep it from burbling.

Four flap positions are provided with the manually-operated cockpit lever being notched for each. These are zero, 20 degrees, 30 degrees and 40 degrees. Flap area is exactly double that provided on the predecessor Model 170A's drag-type flap, being 21.2 sq. ft. as compared with only 10.6 sq. ft. How big this is and how great a 40-degree flap angle is can be readily appreciated the instant you feel its effectiveness and glance back after lowering full flap. It is a lot of flap for a lightplane such as the 170B.

Short-field handling is the big asset of having the new high-lift flap. For take-off, 20 degrees is used. You can apply this at the beginning of your take-off run, maintaining an approximate 3-point attitude. As your speed reaches about 45 mph., the airplane flies itself off. Then the flap really gives you lift. The use of a flap does not increase the airplane's rate of climb. But it does steepen your flight path in the climb. The rate of climb for the 170B is the same as for the 170A—a good 690 feet per minute

(Continued on page 38)

Cubs for Crops

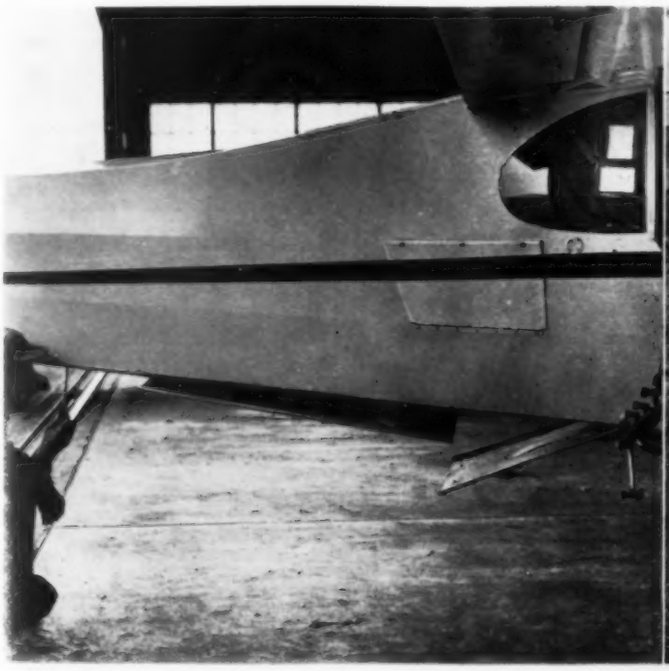
One of many test patterns of Super Cub's spray is being made on a strip of paper in the scene above. Dispersal equipment was tested extensively.
—(Piper Photo by Gordon Vincent.)

A NEW PA-18-A version of the 125-hp. Piper Super Cub incorporates special modifications for dusting and spraying as an aerial cropper. Biggest feature is an 18-cu. ft. removable tank in the turtle deck behind the seat, holding some 110 gals. of fluid or dust—twice the amount carried in previous models.

Normal gross weight is 1,500 lbs. However, over 1,500 lbs. is now permitted for special purposes under CAR Part 8. Piper gives performance at 1,500-lb. gross as follows, with factory figures for 2,000-lb. gross in parenthesis: Stall speed, 38 mph. (45 mph.); take-off to clear 50-ft. obstacle, 510 ft. (950 ft.); landing distance over 50-ft. obstacle, 600 ft. (875 ft.); rate of climb, 1000 fpm. (680 fpm.); cruising speed at 75 per cent power, 110 mph. (108 mph.).

For spraying, its booms with 12 nozzles each swing back and up if they strike an object. They cover a 50-ft. swath. As a duster, it has a dispersal unit with both slots and vertical scatter plates for a 50-ft. swath. Wind-driven double agitators are in the bottom of the hopper. Conversion from spray to dust or vice versa takes 1.5 man-hours. Extra-heavy safety belt and shoulder harness are provided. ★ ★ ★

Large removable belly panels permit easy inspection and cleaning on the Cub cropper. Fuselage underside is of aluminum.



Fuselage chemical tank will hold contents of two drums—110 gals. Tank removal provides large space for cargo.
—(Piper Photos by Gordon Vincent.)

Prototype of the Convair 340 is shown on its first test flight. Larger than the predecessor Convair 240, the new model carries 44 passengers as an airliner. Over 100 have been ordered by air carriers, four by corporations to be used as executive transports.
—(Convair Photo.)

Executive Convairs

Three firms have ordered business flying's most modern private transports

AiResearch Aviation Service Company, Los Angeles, will install executive interiors on four Convair-Liner 340's ordered from Consolidated-Vultee Aircraft Corp., San Diego, by three corporations for business flying. Three of the new transports are scheduled for delivery in the third quarter of next year, and the fourth in the last quarter.

Edward A. (Eddie) Bellande, vice president and manager of AiResearch Aviation Service, said that the 340 project would also include the installation of such items as Sperry engine analyzers, drift meters and auxiliary power units (10 hp.) on some models.

One of the Convair purchasers, an oil company, which has ordered two of the executive aircraft, will utilize Jato for short-field work in intra-Africa transportation. AiResearch Aviation Service will install the electrical connections for these auxiliary take-off power units.

Bellande said this customer will utilize the Convair 340 as a combination passenger-cargo carrier for delivery of its own personnel and supplies throughout Africa. This will supplement the company's trans-ocean services with DC-6B's and Constellations.

Interior of the oil company executive Convairs will provide for flexibility in seating, ranging from 24 to 38 passengers. Aft section of the airplane has provision for 32 seats or 16 double chairs, eight of which will be mounted on slide tracks for easy removal. The remaining eight sets of seats can be utilized as sleepers. The forward compartment includes a divan and two sets of double chairs with tables between.

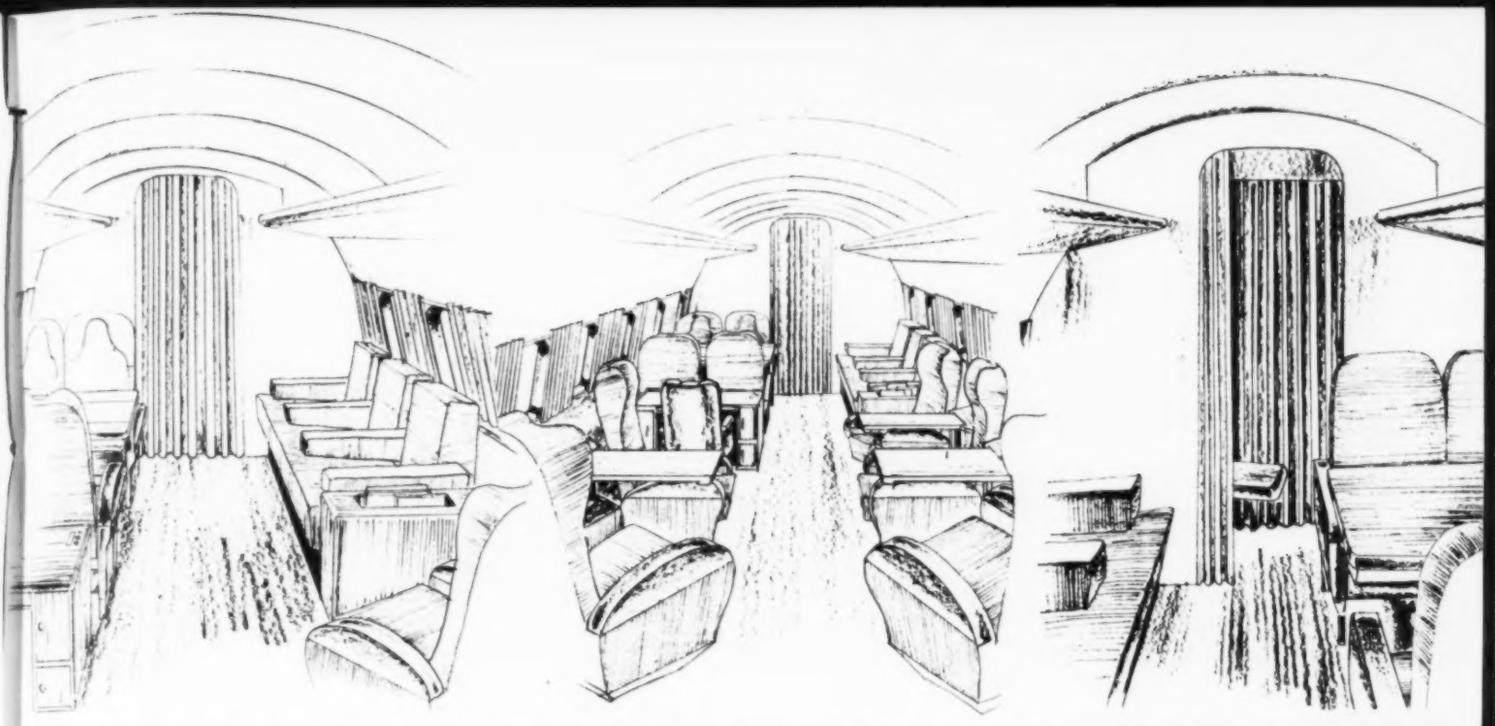
The divans to be installed in the Convairs are an exclusive AiResearch Service design, manufactured and sold by the company. It seats three, has folding arm rests with foam rubber seat and backs. It sleeps two when folded down into a berth. Seven AiResearch divan sets have been ordered for special airline versions of the DC-6B, now coming off the production line at Douglas Aircraft Company.

A 27-place executive Convair for another oil company will be supplied with three AiResearch divans, two in the forward compartment and one in the aft section of the airplane. Four sets of berthable chairs will provide additional sleeping quarters for four, or seating for eight. Center section of the ship will have five full swivel chairs, plus three folding tables, a secretary's chair and desk, and built-in magazine racks.

A grey and claret color scheme has been carried out in this 340, with grey plaid material for the seats and divans. Arm rests are of claret and grey. Tan and beige vinyl plastic simulating leather will be used in the lavatories, one forward and one aft. Light-colored woodwork is used throughout.

The fourth Convair will be somewhat similar to the second oil company's, differing in seating arrangement with eight swivel chairs in the lounge compartment, and a single berthable divan in the forward section. Color scheme in this airplane will utilize tans, with seat material of a knobby grey-tan mixture. It is designed to carry 31 passengers, with a double row of chairs in place of divans in the aft section.

The four Convairs will be delivered to AiResearch directly from the production line at Consolidated, each equipped with P & W R-2800-CB16 engines, AiResearch oil coolers and



AiResearch interiors for executive Convairs are sketched above. Three-place divans make into double beds. Practically all of the chairs are "berthable"—may be reclined for sleeping. Tables fold out of the way.

(AiResearch Sketches.)

pressurization equipment. All will have standard airline cockpits, plus standard installations of such items as air outlets and reading lights. Balance of the interiors, including necessary bulkheads, buffets, lavatories, ceiling, floor and window coverings and trim will be designed and supplied by AiResearch. Custom upholstery matching the cabin interiors will be installed in the cockpits.

The Convair 340 has a gross weight of 45,000 pounds, compared with a gross of 41,790 for the 240. Wing span has been increased 13 feet 11 inches in the new model and the fuselage is four feet, six inches longer. Fuel capacity is 1,900 gallons for longer range.

During the past five years of operation, AiResearch Aviation Service has furbished some 60 executive transports, including 27 DC-3's and nine Lodestars, the most popular airplanes for this type of flight operation. Others on the AiResearch executive list include Beech D-18, Boeing B-17, North American B-25, Douglas B-23, the Super DC-3, and Cessna 195. The Super DC-3 installation will be done for Douglas Aircraft Company.

One of AiResearch's most recent conversion jobs was for the Carter Oil Company, Tulsa. Penn Wilson, pilot, and Jess Collins, co-pilot, brought the DC-3 in for a complete 8,000-hour overhaul and installation of a new executive interior.

Two large picture windows, five feet long and 17 inches high, and 12 enlarged easy-vision cabin windows will be features of the Carter conversion. The passenger cabin is divided into two compartments—one containing two berthable divans, and the other a lounge area with six full, 70-degree recline swivel chairs.

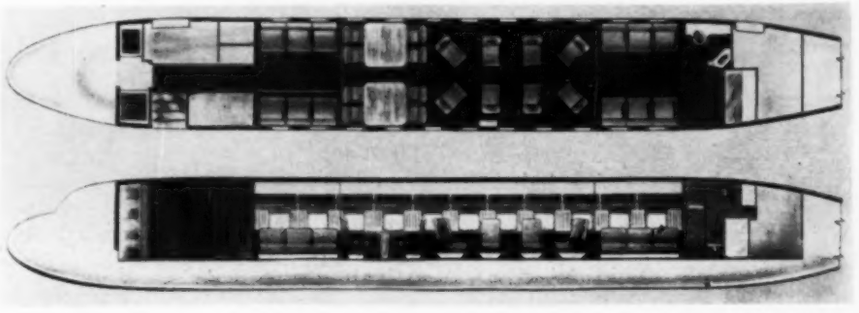
Other features include a Formica ceiling with center drop panel and indirect lighting. Aft end of the ship includes a modern lavatory opposite the main entrance door. An ultra-modern buffet, completely enclosed in wood and Formica, is also contained in the aft section. The passenger compartment will include these features: Side panels of rich brown leather, floor covering of brown, thick-pile carpet. The bulkhead at the forward end of the cabin will be covered with a photo-mural of the Grand Teton Country (Wyoming).

One of the most complete navigation and communications systems in an executive aircraft will be installed in the Carter DC-3. This includes dual ARC omni navigation system, dual ILS facilities, dual Bendix ADF system, Bendix marker receiver, Sperry

(Continued on page 29)

Sleeping compartments in Convairs will look like this. Curtains provide privacy. Floor plan of standard executive Convair (below) shows seating for 28 persons as contrasted to 44-passenger airline interiors. Two lavatories are provided, one forward and the other aft. Convair 340's are pressurized.

—(Convair Sketches.)



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Air Training Manifesto

Civilian training facilities are vital for air power expansion, but they remain neglected in defense planning

BY JOHN T. GRIFFIN

Immediate Past President
National Aviation Trades Association

THE United States of America is at war. I refuse to admit that any battle action which is now over eighteen months old and which has cost us upwards of 100,000 casualties and 1,500 airplanes, and finds us locked in mortal combat with one of the largest nations in the world, is anything else but war.

Our military leaders and national planners know, just as well as you and I know, that a modern war cannot be won without developing and employing airpower to its fullest extent. Airpower has been described as everything within a nation that has to do with air. It includes air education, air transportation, personal flying, maintenance facilities, research laboratories, and the military establishment for air. No nation that restricts its airplanes to the hands of its professionals can be said to truly possess air power. A nation's air power is its total aviation activities, civilian, military, commercial and private, potential as well as existing.

Civilian Resources Being Depleted

The backbone of any civil effort to assist in the national mobilization of the nation's air power is the fixed-base operator. But we, the fixed-base operators, find ourselves faced with a most incredible situation in which, eighteen months after the commencement of major hostilities, we are still being denied the opportunity to assist our nation in mobilizing its air power.

Furthermore, through the competition of the military services, the air transportation industry and the aircraft manufacturing industry, we find our facilities and manpower being depleted at an alarmingly increasing rate. This depletion has now reached such proportions that it jeopardizes our ability to furnish and operate the maintenance, servicing and operating facilities which will be required of us at such time as the second-guessers finally determine that the nation's aviation manpower requirements must again be met through our assistance. History proved during World War II, and even again during the early stages of this World War III, that the national air mobilization plans for the defense of our nation must be backed up by substantial assistance from the fixed-base operators.

World War II training requirements could not have been met without assistance from our civil aviation industry. During World War II we all had an opportunity to witness the devastating effects of wartime conditions on the fixed-base operators. However, at that time, demands for complete mobilization descended upon us instantaneously and military plans for utilizing civil aviation facilities jelled very rapidly. The civil pilot training program, war training service, and military training contracts served to preserve a substantial and prosperous nucleus of our aviation training institutions for the duration of the war. General Hap Arnold, the first commander of our United States Air Force, has been quoted as believing that these civil training institutions saved the Air Force from disaster insofar as its training requirements were concerned.

On the other hand, our more recent hostilities obviously provided no such impact for prompt action; and the subsequent indecision, lethargy, and complete lack of national policy or plans have, at this point, brought the vast bulk of our civil aviation training institutions to the brink of failure, thereby seriously jeopardizing our ability to fulfill the demands which must ultimately be placed upon us.

When hostilities broke out in Korea, I recognized at once from past experience that our civil aviation training schools were in for a bad time unless government leaders took immediate cognizance of this problem, which includes our critical national training requirements, and formulated an early program for the utilization of these civil training facilities. Except to a minor extent on the part of the Air Force, as of this date, no such plans are under consideration. Evaluating what we should have learned from history and experience, *this lack of a plan strikes me as nothing short of fantastic, and I hope that some day those responsible are required to answer for it.*

USAF Study Favors Civilian Schools

After the close of World War II the Air Force appropriated funds for the purpose of studying and analyzing training activities conducted under contract with civil institutions, and comparing them from the standpoint of effectiveness and cost with similar training conducted by the Air Force itself. The conclusions contained in this report were declared *secret*. Nevertheless, we now know enough about that report to determine that these conclusions were definitely in favor of the training conducted in civil schools. In any event, the Air Force is now contracting for most of its basic flying training plus a minute part of its airman technician training. But, it seems that they are apparently planning only temporary utilization of a small part of the available civil training resources and they are again expanding their own training facilities.

Why this inconsistency? A logical assumption would seem to be that they are this time considering the civil aviation industry for emergency assistance only, in order to carry them over the hump until their own facili-

Civilian Aviation's Training Crisis

IN this manifesto on civil aviation training and its vital role in war mobilization, John T. Griffin warns that unless civil aviation's obvious position in the war effort is quickly recognized and its mission assigned, its priceless facilities might well disappear from the national scene. The crisis stage is not far off.

Following this timely appraisal of the dangerous situation facing civil training institutions, Griffin's article concludes next month with a formula of what must be done to ward off complete disintegration of facilities that will be urgently needed as the military air program continues to gain momentum. ★ ★ ★

ties can be expanded to handle the load. The Naval Air Service has no plans for utilizing civil schools and obviously will not do so until they are in a real jam. The Army Air Service would like to use civil school facilities but is prevented from so doing by the Joint Common Specialist Training Agreement, which developed in connection with the unification of our Armed Forces.

During a prolonged period of mobilization, or war, the aviation training institutions are severely penalized:

1. *They encounter a scarcity of new products to sell.*
2. *A severe shortage of skilled personnel is immediately created.*
3. *Defense contractors bid wage scales far above what the training institutions can afford to pay, in the face of declining business.*
4. *A shortage of flight and technician students, because of the imminence of military service for those young men who constitute the normal bulk of the customers.*

Therefore, it logically follows that if quick plans are not made to utilize the civil training facilities, then they are in most cases destined to quickly disappear.

Crisis Not Far Off

Most of us have already felt the effects of a shortage of new products to sell. We have watched our skilled personnel move on to more lucrative jobs. We have seen our labor costs increase, and our trainee enrollments fall off. *In other words, unless our obvious position in the national mobilization scheme is quickly recognized and our mission assigned to us, then we are now in the process of disappearing from the national scene.*

Every competent military authority who has had the courage, and courage seems to be necessary, to speak his mind agrees that a 95-Wing Air Force is far from adequate to guarantee the security of our nation. Our present Administration seems to have consistently opposed the necessary build-up of our Air Forces. This is apparently not a party issue, however, as influential elements in both parties have been instrumental in applying this squeeze on air power. Nevertheless, it now seems possible that recent unfortunate developments in the military situation in Korea will tend to bring some sense out of the present chaos. All of a sudden, our leaders, for reasons of their own have jumped on the air power bandwagon and are now publicly stating that we need a minimum 150-Wing Air Force. We vitally need and are going to have an expanded Air Force, and our leaders cannot afford to sit by and watch our essential civil aviation training resource be liquidated.

A great deal of time, study, and work has been expended by many individuals in evaluating this entire problem and in putting forth efforts to bring the problem before those government officials who should be most vitally interested in it; and whom they feel must bear the responsibility for the aviation mobilization debacle which is about to take place. During the eight-month period ending last May, I served as chairman of the Air Mobilization Training Task Group which was created within the framework of the National Security Resources Board for the purpose of studying this problem and making specific recommendations to the President of the United States. This committee studied the subject at great length in an effort to develop a sound plan for the guidance of the military services in meeting their trained air manpower requirements in the most economical manner. The committee consisted of five industry members and a staff officer from each of the three air services. Its work has now been completed and the recommendations have been filed. I, for one, feel that its work has been well done, but as of this date we can only hope that the necessary steps will be taken to implement the recommendations made. So far it would appear that this may be a vain hope, until such time as the civil and military manpower requirements reach the crisis stage. *I am in a position to emphasize that the crisis stage in the civil aviation picture is not far off.*

If the recommendations of this committee are carried out, then the civil training institutions will be in a much healthier condition and will be preserved as a part of our national air power resource; and the military services will be utilizing their available manpower much more effectively in carrying out their assigned mission, and the American taxayer will be saved a great many millions of dollars. We must press for immediate intelligent air policy decisions at the administrative level. Otherwise, may I repeat, the civil aviation training institutions will be irreparably damaged for the duration of the current conflict; and the indispensable defense and mobilization functions of this segment of the industry will not be available when most critically needed.

(To be continued next month.)

NATIONAL AVIATION TRADES ASSOCIATION leaders for 1952 are shown with CAA Administrator Charley Horne (right) at their recent convention. From the left are Executive Secretary Charles Parker of Washington, D. C., President Bob Northington of Winston-Salem, N. C., and Martha Anne Woodrum of Roanoke, Va., vice president. —(NATA Photo.)

Coming aboard the 960-ft. flight deck of the mighty Midway, a North American AJ-1 Savage snatches 80 ft. of cable in coming to a stop from a jarring bounce at the bottom of a 35-ft. drop-in. Two piston engines and a jet engine power the 34,000-lb. attack bomber.
—(North American Aviation Photo by Bill Susoeff.)

Bombers Aboard

MULTI-ENGINE attack bombers designed for carrier operations are multiplying the Navy's destructive potential and increasing its radius of air assault. Latest development in the process was pilot qualifications at sea in which Heavy Attack Wing One's first heavyweights were brought aboard the USS Midway to make 139 landings in less than two days.

Pictured on these pages aboard the mighty Midway, the heavyweights are North American AJ-1 "Savages." They were developed for high-speed attack missions, are powered by two piston engines and one jet engine, have a top speed of more than 350 mph., and are in the 34,000-lb. category.

To handle the big bombers, the Midway and other mammoth U. S. carriers have had their decks beefed

As the USS Midway speeds into a 33-knot wind, four AJ-1's are gassed up preparatory for pilot qualification flights.

Deck-edge elevator lowers a Savage to the hangar deck below.
—(North American Aviation Photos by Bill Susoeff.)

up to take the punishment inflicted when an AJ-1 drops in to land. This drop is sometimes from 35 ft. at a speed of some 85 knots or 98 mph. How the AJ-1's landing gear takes the punishment is something else. Watching the first Savage land aboard the Midway, for example, Captain Kenneth Craig, the Midway's "old man," couldn't help but wince when he saw the Savage land on its left gear. The tire flattened clean to the rim. But nothing happened. "Whoever designed that landing gear should be congratulated; I've never seen a gear that will take that kind of punishment," said the veteran Navy airman who was the last signal officer of the first carrier, the old Langley. Dropping like a flat-iron, the first Savage aboard snatched the No. 2 arresting cable and pulled out 88 ft. of it before coming to rest. ★ ★ ★

A Savage rolls past the Midway's island structure for take-off (right). Wing tips and vertical stabilizer fold for hangaring big AJ-1 below deck at sea.

—(North American Aviation Photos by Bill Susoeff.)

Rocket... World famed Navy-Douglas 558-2 *Skyrocket*, which, on August 7, 1951, set new world records for speed and altitude for airplanes of any type or size.

Jet... Designed for intercepting high-flying supersonic enemy planes, the F4D *Skyray* is an advanced-type bat-wing jet, developed by Douglas for the U. S. Navy.

Only Douglas leads in

Advance-type Douglas military and commercial aircraft are in service today... You can depend on Douglas for the new "miracle" planes to come!

SINCE 1920...FIRST AROUND THE WORLD!

Douglas **Cloudster**, first airplane to lift its own weight in payload • Douglas **M-1**, first U.S. mail plane • **Torpedo 1**, world's first torpedo plane • **C-1**, world's first cargo plane • DWC **World Cruiser**, first to fly around the world • **DC-1**, prototype of famed DC-3 (C-47) • A-20 **Havoc**, famous World War II light bomber • A-26 (B-26 **Invader**), first 400 mph attack bomber • DC-4 (C-54) **Skymaster**, first 4-engine global transport • **SBD**, Navy attack bomber that stopped the Japs at Midway • AD **Skyraider**, Navy attack bomber, now fighting in Korea • **C-74**, largest World War II transport • C-124 **Globemaster II**, largest cargo transport in production • **DC-6** and DC-6A **Liftmaster**, first post-war modern transports • F3D **Skyknight**, first Navy jet night fighter • D558-1 **Skystreak**, first Navy transonic research airplane.

WORLD'S LARGEST BUILDER OF AIRCRAFT FOR 32 YEARS ▲ MILITARY AND COMMERCIAL TRANSPORTS
FIGHTERS ▲ BOMBERS ▲ GUIDED MISSILES ▲ ELECTRONIC EQUIPMENT ▲ RESEARCH AND DEVELOPMENT

Turbo-prop... First U. S. turbo-prop attack bomber, the A2D *Skyshark*, built for the U. S. Navy and now entering production at El Segundo Division of Douglas.

Reciprocating... World's largest cargo transport now in volume production. It's the C-124 *Globemaster II*, designed to support global operations of the military.

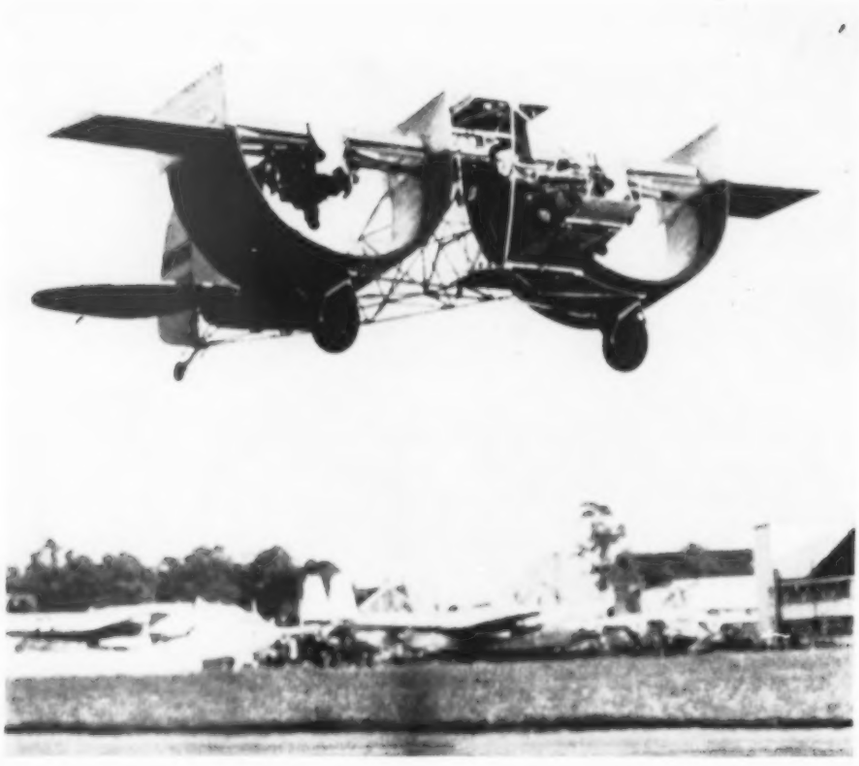
n all four power types...

From the DC-3 to the *Skyrocket*—fastest airplane ever built—Douglas has pioneered remarkable advances in every phase of the art of flight. Undisputed leader in the design and production of the finest in transport airplanes, Douglas has also developed basic airframe types to embrace the three new powers: turbo-prop, jet and rocket. *Douglas is the only manufacturer that has built and flown all four aircraft types!* Certainly this is a tribute to the foresight and creative engineering skills of the Douglas organization. Today, as Douglas continues to mass-produce the aircraft needed *now*, research and engineering teams push ahead in every field of aeronautics... planning the "miracle" planes that will supersede the near-miracle planes of today. Douglas Aircraft Company, Inc., Santa Monica, California.

Depend on

DOUGLAS

First in Aviation



LATEST TAYLORCRAFT? Custer channel wing aircraft was shown recently in Pittsburgh, where Taylorcraft, Inc., revealed it had been licensed to use the Custer design. Venturi-like channels have 35-sq. ft. wing area. Engines are 90-hp. Continentals. Vertical take-off and hovering are claimed for it.
(Custer Photo.)

flight pictorial

TWO OF THE FASTEST jets now being used by USAF are shown in formation—the 185,000-lb. Boeing Stratojet powered by six GE J-47 jets and the North American F-86 fighter powered by a single J-47. Both are much faster than 600 mph.
—(Boeing Photo.)

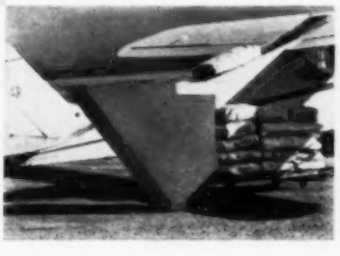
For the Most Efficient and Economical Application of Agricultural Chemicals

PIPER PA-18-A
duster and sprayer

YOU'LL FIND THESE IMPORTANT FEATURES IN THE PIPER PA-18-A

"FLOATING BOOMS" release and swing back if hit for safety and damage reduction. Twenty-four highest quality nozzles, with positive, quick shut-off, give uniform 50 foot swath at one-half to five gallons per acre. Pilot can regulate pressure from cockpit.

SLOTTED VENTURI. Double-gated venturi, with lateral flow dispersal plates, plus flaps, gives deep, penetrating coverage in wide swath. Rugged, heavy-duty agitator assures hundreds of hours trouble-free use with uniform flow and no clogging.



BIG HOPPER holds 18 cu. ft. of dust or 110 gals. of liquid and is removable. Large tight-sealing hatch and reinforced turtle-deck expedite loading. Change from duster to sprayer takes less than 2 man-hours. PA-18-A with half ton load takes off in 315 ft.

Hundreds of veteran agricultural pilots gave their advice; Piper engineers spent long months perfecting desirable features; hundreds of flight test hours were flown to develop better dispersal equipment.

Out of this exhaustive program, Piper now introduces the new Piper PA-18-A—available as a duster, sprayer or combination unit to apply agricultural chemicals for pest control, weed eradication, seeding, fertilizing, defoliating and many other uses.

With the same sensational performance as the famous Piper Super Cub, the PA-18-A will operate with half-ton load from unusually small fields and at exceptionally high altitudes. So much more economical and reliable than surplus aircraft; one-tenth the cost of rotary-wing machines; safer and much more efficient, the new PA-18-A applies chemicals at far less cost per acre.

Complete details on the PA-18-A are available in new brochure. Write for your copy to Dept. 1-F.

PIPER AIRCRAFT CORPORATION

LOCK HAVEN, PENNSYLVANIA

OTHER IMPORTANT FEATURES: Shoulder harness • • Wire Cutters on landing gear • Easy-to-read liquid-level gauge • Removable metal fuselage belly • Excellent visibility • Non-flammable Duraclad finish • 125 horsepower Lycoming engine • Metal propeller • Baggage compartment • 35 to 120 mph speed range • Flaps

SUPER CUB UTILITY MODEL. Piper also offers the standard Super Cub with 47-gallon external tank for spraying. Leaves both seats usable for general utility flying. Tank and booms easily removable when not spraying.

The speckled patterns above are actual size spray drops laid down on test paper at 80 mph for coverage of two gallons per acre.

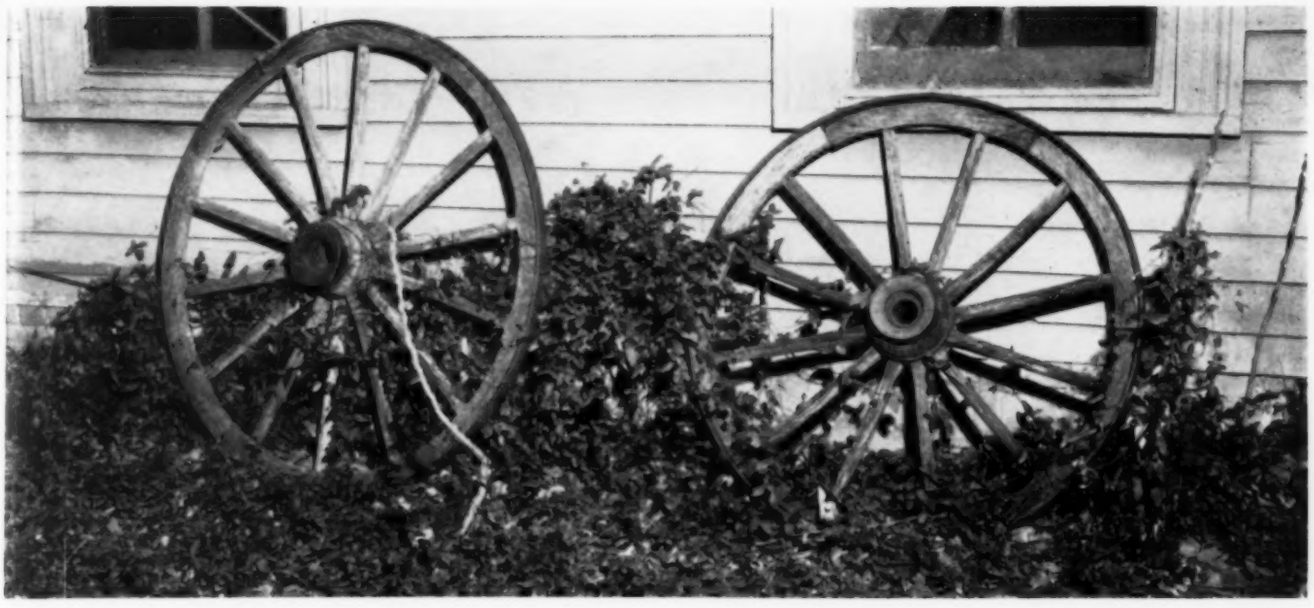
SOMETHING OF A RECORD was achieved by Beech Aircraft workers who completed a full-scale, metal prototype mock-up of the USAF's 300-mph. T-36A advance trainer-transport in only 4 months. It is shown in the Beech factory at left being inspected by a USAF board headed by Maj. Gen. K. P. McNaughton, Air Training Command vice commander. —(Beech Photo.)

THAT'S NO CRYSTAL BALL W. T. (Bill) Piper, the Cub manufacturer, is studying at left. It's one of two loving cups won in Iran by David Bump, former Piper instructor. Bump is now flying a Super Cub in Pakistan under a locust eradication program. —(Piper Photo.)

flight pictorial

WORLD'S OLDEST ACTIVE PILOT, James W. Montee, made another of his birthday flights recently when he turned 89 years young. Shown with him at Vail Field in the Los Angeles area are his daughter, granddaughter, and great grandson. Mr. Montee holds pilot license No. 414 and A. & E. license No. 1367.

HELICOPTER INDUSTRY LEADERS were photographed at a recent Washington meeting of the Aircraft Industries Association's Helicopter Council. Seated, left to right, are: E. J. Odlum, Kaman Aircraft; B. Kelley, Bell Aircraft; J. E. Beighle, Sikorsky Aircraft; Harvey Gaylord, Bell Aircraft and Council chairman; F. N. Piasecki; Stanley Hiller, Jr.; Admiral D. C. Ramsey, AIA; Don Mockler, AIA; and L. W. Pogue, legal advisor. Standing, left to right are: Owen Niehaus, Bell; Joseph Mashan, Bell; Charles Kirchner, Kaman; R. H. Williams, Hughes Aircraft; G. N. Montgomery, Doman Helicopters; Don Parker, Piasecki; H. S. Tremper, Piasecki; Frank Erdman, McDonnell Aircraft; Brackley Shaw, Pogue and Neal; M. R. Brown, Piasecki; Jean Howard, AIA; Warren Rockwell, Hiller; Avery McBee, AIA; Ed Vanderlip, Piasecki, and Ned Benham, Sikorsky. —(AIA Photo by Del Ankers.)



In Retirement . . .

ALL BECAUSE OF BETTER METHODS

Yes, the old prairie schooner's wheels, which played such an important part in our nation's early history, are now in retirement all because the competitive spirit of free-enterprise developed a better method of accomplishing the job to be done.

The J. D. Reed Company of Houston typifies this spirit in the truest form. For here is a company constantly developing better methods, techniques and practices that have set a new high standard in aircraft service and maintenance.

Where your aircraft problems are concerned the J. D. Reed Company will serve your needs in the most efficient, economical and practical manner possible offering the finest and most complete service available anywhere backed by twenty-one years of customer acceptance.

If you are not already taking advantage of the superior technical abilities, workmanship and extensive facilities available to you through the J. D. Reed Company you will find it worth while to investigate why and how we can serve you better.

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An even finer version of the World's Most Experienced Airliner

Lockheed's new Super Constellation combines the unmatched record of experience and dependability of the world famous Constellation with greater speed, greater range, greater comfort and greater size – unquestionably the finest airliner in the world.

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Look to Lockheed for Leadership

Lockheed

BOOSTS PROFITS FOR AIR CARGO OPERATORS

Air freight traffic has increased 167% since 1946, continues to grow at a rapid clip. During this period, Lockheed engineers worked steadily on the problems created by this fast-growing business and have come up with much-needed developments.

Some of these developments were recently previewed by airline executives and military officials in a 3-day seminar held at Burbank. It was revealed that Lockheed (1) has a new Super Constellation cargo plane designed to reduce freight-carrying costs, and (2) has thoroughly analyzed the problems of loading, tying down, unloading and handling of freight at airports. One exhibit was Lockheed's mechanically operated scale model of "the ideal air cargo terminal," which has attracted national attention.

The new Super Constellation cargo plane is the most highly mechanized freight carrier yet designed. Some of its outstanding advantages:

1. Solves major interior handling problems with three exclusive features: an all-metal (magnesium) floor, a built-in mechanical conveyor, and a portable, airborne cargo elevator of 10,000 pounds capacity.

2. Carries "more cargo farther and faster" than any other airplane.

3. Increases carrying capacity, both in total floor space and weight.

4. Guarantees greater profits because of its low direct operating cost—actually 4.9 cents per ton-mile.

The Super Constellation is the result of a decade of air cargo research at Lockheed. It combines the experience and dependability of the world-famous Constellation transport with greater size and greater operating economy.

It is 18.4 feet longer than the standard Constellation.

It will carry 38,500 pounds, or nearly 20 tons, across the nation.

It will carry over 25,000 pounds, non-stop from New York to Paris.

It has net usable space totaling 5,568 cubic feet, equal to nearly three standard railroad refrigerator cars.

And its metal watertight floor permits much heavier load limits (300 lbs. per sq. ft. or 1000 lbs. per running ft.), higher density cargo and a wider variety of cargo.

Military versions of this airplane already have been ordered in large numbers for both the Air Force and the Navy.

TYPICAL DAY ON AIRESEARCH RAMP at Los Angeles finds these business planes being serviced. The B-17 is the Chicago Tribune's, was converted by AiResearch, which has done nearly 60 executive conversions during the last five years.
—(AiResearch Photo.)

EXECUTIVE CONVAIRS

(Continued from page 17)

C2A gyrosyn compass, Sperry Zero Reader, Collins 180-channel VHF transmitter, ARC-1 20-channel VHF transmitter, Bendix RTA-1C high frequency communications system, 10 channels modified for ship-to-shore, Bendix range receiver and ARC type isolation system.

The pilot's compartment will be completely renovated, including removal of the bulkhead behind the cockpit. Custom-built radio, instrument and switch panels will be installed, along with C-46 type seats to replace the usual C-47 type. The cockpit and crew compartment areas will be lined with sheet metal and covered with a vinyl fabric. The floor will be covered with a vinyl-covered cork. The crew compartment will contain a hydraulic compartment, a cabinet for maps and ships' papers, a closet area and a compartment for radio equipment.

Other highlights of the Carter conversion include the installation of larger engines (P & W R-1830-75), 200-gallon fuel tanks in the outer wing panels for greater range, and installation of a new liquid-agent fire extinguisher system. The latter is a CB (methyl bromide) type, which gives more effective fire protection than present CO-2 systems. ★ ★ ★

MAKING THE MOST OF WING-TIP TANKS on the Navy's P2V Neptune, Lockheed engineered fins to give Neptune added lateral stability. Fins also steer tanks clear in a drop. The huge tanks carry electronic gear and lights as well as fuel.
—(Lockheed Photo.)

AIR REPORT

(Continued from page 7)

CHANCE VOUGHT'S F7U-3 CUTLASS, latest production model of the tailless, twin-jet Navy shipboard fighter, made its first flight recently at the factory in Dallas. It is heavier, better-equipped and packs more armament.

TOTAL CIVILIAN LIGHTPLANE SHIPMENTS FOR 1951 will probably be about 2,300 in number, compared with 3,400 for 1950, with 1951 factory billings totalling about $18,500,000.

CESSNA AND PIPER have been authorized by CAA to test and certify to the airworthiness of the small aircraft they manufacture.

RONALD S. GALL has been promoted to public relations manager for Curtiss-Wright Corporation and its divisions, having been public relations manager for the Propeller Division. He originally joined Wright Aeronautical in 1930. . . . **ASBURY MEADOWS,** first Texas director of aeronautics has been named general manager of Wichita Falls Air Transport Co., Wichita Falls, Texas, by Fulcher (Army) Armstrong, who intends to devote more time to his oil interests.

HELICOPTER PASSENGER AND MAIL SERVICE IN NEW YORK CITY has been authorized by the CAB, with issuance of a 5-year certificate to New York Airways, Inc. Service will be operated (1) over shuttle routes between LaGuardia, Newark and Idlewild airports, (2) between those three airports and Manhattan, and (3) over lineal routes radiating from LaGuardia and Newark airports to various suburban points.

THE COLLIER TROPHY, aviation's most coveted annual award, was presented on December 17 by President Harry S. Truman to the helicopter industry — the men who make the machines and the services which operate them.

AT THE 48TH ANNIVERSARY WRIGHT BROTHERS DINNER sponsored by the Aero Club of Washington, D. C., the Wright Brothers Memorial Trophy was presented to Dr. Jerome C. Hunsaker, NACA chairman, for his significant public service of enduring value to aviation, and the Brewer Trophy for contributions to the development of air youth in the field of education and training went to Dr. Harold E. Mehrens.

THE AERIAL APPLICATORS ASSOCIATION, non-profit group, has been incorporated under Oklahoma law and the first meeting of members was held in Oklahoma City on December 10. Incorporators are John H. Burke, veteran Oklahoma airport owner and agricultural aviation operator; Wm. N. Shanner, vice president; Dorothy Young, secretary-treasurer; and A. E. Bollar, technical representative.

OF A TOTAL PROGRAM THRU FISCAL YEAR 1951 OF 392 VHF OMNI-RANGES, 335 have been commissioned, 10 are operating on test, and the remainder are under some stage of construction or installation. By February 1 the Air Coordinating Committee Nav Panel will have completed a review of the factors governing the decommissioning of low-frequency range stations. All interested parties should communicate with their respective CAA regional headquarters as to recommendations for LF ranges which should be operated.

VOLUME III OF THE ARMY AIR FORCES IN WORLD WAR II, the fourth of a seven-volume series being prepared by the USAF Historical Division and published by the University of Chicago Press, has just been released.

NEW OFFICERS FOR ADMA were photographed at its New York convention. Seated, left to right, are L. W. Trees (Bendix Scintilla), manufacturing vice president; George W. Jalonick (Southwest Airmotive), president, and Larry Zygmunt (General Aviation Supply), distributors vice president. Standing, left to right, are Tom Fernley and H. Donald Richards, managing director and executive secretary of ADMA. Four directors elected are Carl A. Carlsen (Air Associates), Francis L. Hine (Airwork), D. H. Hollowell (Continental Motors) and D. S. Tilden (Bendix Eclipse-Pioneer). Jalonick, the new president, is shown at left greeting CAA Administrator Charles Horne on his arrival in Manhattan by New York Port Authority helicopter.

Airmen's Calendar

Jan. 21-22—Fifth Annual Conference of National Aviation Organizations, Mayflower Hotel, Washington, D. C.

Jan. 26 — Mexico City - Guadalajara Lightplane Race.

Jan. 28-Feb. 1—Institute of Aeronautical Sciences 20th Annual Meeting, Hotel Astor, New York.

March 14—IAS 7th Annual Flight Propulsion Meeting, Cleveland, Ohio.

AIR RACE

Mexico — Guadalajara
Organized by the
Aereo Club Campestre De Mexico, A. C.

All flying clubs connected with private aviation are invited to participate in the Mexico-Guadalajara Air Race which will be held on January 26, 1952, in competition for valuable trophies and cash prizes.

This event will be the preparation for the BIG INTERNATIONAL MEXICO CITY-LOS ANGELES AIR RACE, which will be held in January, 1953, with a first prize of $100,000.00 (One Hundred Thousand Pesos 00/100) Mexican Currency. For additional information contact our offices at Balderas No. 31-206-07.

Aereo Club Campestre De Mexico, A. C.

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Atlantic Aviation Service
New Castle County Airport
Wilmington, Delaware

Atlantic Aviation Corp.
Teterboro Airport
(25 minutes from Times Square)
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also
Beverly Airport
Beverly, Massachusetts

Butler Co., Aviation Division
Municipal Airport
Chicago, Ill.

Currey Sanders Aircraft Co., Inc.
Downtown Municipal Airport
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Francis Aviation
Capitol City Airport
Lansing, Michigan

Gray Aircraft Svc. Co., Inc.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

Harte Flying Service
Municipal Airport
Wichita, Kansas

Hunter Flying Service, Inc.
Hunter Field
Cedar Rapids, Iowa

Ohio Aviation Company
Dayton Municipal Airport
Vandalia, Ohio

J. D. Reed Co., Inc.
Municipal Airport
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Questions and Answers for Airport Operators

Airport Leases

QUESTION: I'd like to see something in your Question and Answer column regarding the length of term of leases on airports. So many people advocate avoiding long-term leases in the face of requests that seem perfectly reasonable for long-term leases. What are long-term leases, for instance? Certainly, no hard and fast rule seems to fit all cases.

(Continued from last month.)

When the land leased is for the purpose of permitting the lessee to build structures such as hangars, shops and other similar facilities with private money it is only fair to grant a term sufficient to enable the lessee to write off his investment at an annual rate comparable with the prevailing rates for renting such space when publicly owned. To limit the term of such leases to unreasonably short periods would mean unreasonable annual rates of occupancy and would preclude the possibility of getting private money to build needed structures and bring needed business to airports.

However, since the term of such leases, which may be as high as twenty or twenty-five years in many cases, may exceed the period for which the need and uses of the particular tract may be foreseen by the lessor, some airports have safeguarded their future planning by granting the leases under conditions and terms which enable them to cancel such leases after initial periods of five or ten years on option provided they purchase the improvements at some stipulated value. This may be by appraisal, by an established rate of write-off or for a stipulated sum. Any such conditions should be fair to both parties to an extent that their equities are preserved.

Sometimes leases for periods as high as fifty years are requested. These obviously extend beyond the time when either party can foresee his needs and the conditions which will apply to the airport.

The best yardstick by which the equity of lease terms can be measured in any case is one which limits the term to the foreseeable future or, if the term goes beyond that time, provides for equitable adjustment.

Public Acceptance for Airports

Dear Boss:

Four years ago you gave me the assignment of handling this Question and Answer column. This 1952 column marks the start of the fifth year. In celebration, and in compensation for not having missed any deadlines and not having misspelled many words, I would like to ask just one thing.

I have spent four years writing answers in a business-like manner to business-like questions. So for January, 1952, will you please let me write a column without a question? I would like to write about "public acceptance of airports." If it is OK with you, here goes:

During the years that we have had these questions thrown at us and have tried to answer them, it has been very evident that the troubles which created the questions in most cases arose from the fact that apparently the airport, its users, its operators and officials had problems that arose from the fact that the airport itself had not become a clearly recognized and understood member of the community. Difficulties with public officials, owning agencies and local interests all pointed to a lack of understanding not only of the needs of the airports but of their uses and general worth to the community they serve.

There is no mystery nor need there be any secrecy about airports. The job they do is known to some people but those people are limited for the most part to those intimately concerned with aviation. So long as the funds from which airports are built or by which they are acquired are public funds, then the public, whether it actually pays the bills or not, is entitled to know what goes on. Not only is it entitled to know but it must, in fact, have the benefit of continuing knowledge of airport affairs and doings or it will soon forget that it has an airport. In almost every place where a public airport exists, it exists because at one time enough interest must have been aroused to induce the public to acquire the airport or to provide the funds to build and improve it. In all probability, at that time, plans and promises were voiced and the general public endorsed its officials in the action they were taking in acquiring and building an airport.

We all know that aviation promised a few years ago a lot of things that it most likely may not produce, 400,000 small aircraft by 1955, for instance.

Actually public acceptance depends upon public understanding and public understanding comes from two sources mainly — the press and the radio which includes television and from actual observation.

If the only time the public hears about its airport is when it needs more money or when an airplane has cracked up, then the public is seeing only the wrong side of the airport. It is all right to talk about radio programs and to keep the airport in the newspaper but how many airport people do that and how many depend upon someone helping to do it? To the airport manager who is trying to build up public acceptance of his airport, it is a virtual necessity that he work closely with the press and radio on items of interest no matter when they occur nor whom they concern so long as they are news, and news is essentially people and what they do. It is better news when the names are those of people who have flown somewhere or have come back by air, who have used aircraft in new and novel ways either for shipment or travel. If a new airplane is purchased, that is news. If a farmer makes a bigger crop because of aerial application, that is news. If more airline passengers are boarded this month than last month, that is news.

The keeping up of an airport or aviation column in the paper is a tough chore and should not be belittled because somebody has to work hard at it. There has been one at Big Spring, Texas, for a long time that has been outstanding. There is one in the Medford, Oklahoma, paper that sparkles with down-to-earth humor and everyday goings on. There was a series of articles in the Lawton, Oklahoma, "Constitution" last year that had a good effect upon setting up an airport organization and keeping sustained interest in the new Lawton Airport.

There are probably hundreds of other instances where somebody has worked hard to keep the airport in the news but it should always be remembered that spot news items, day after day, of real interest will be read by many people who might not get into the habit of reading a column.

About those promises that were made when the citizens were asked to vote a bond issue and which may have not been fulfilled. The public should know the how and why of that. In other words, if the people in a town built an airport because they were told that feeder air service could be expected, they should not be allowed to wake up some morning to the realization that there was no feeder line service. They should be told why and they should be kept advised as to the continuing efforts on the part of city officials and the Chamber of Commerce to get such service. Sooner or later what people want they get if we don't keep them in the dark. The other day in a small town we ran into a genuine problem. Certain maintenance and repair work was needed on the airport. The only way to get it done was to use city forces, but the city streets needed work too. The Mayor told us that if

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Featuring a "pancake design" this receiver has seven tubes and a germinium crystal diode detector. Offers excellent reception and tone quality.

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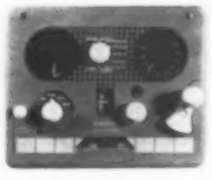

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- **VHF Radio Telephone**

For fixed-base operators, this Narco VHF transmitter and receiver provides two-way ground communications with aircraft on the new "unicom" frequency of 122.8 mc. or other channels for which it can be equipped. Self-contained, it operates on 115-volt, 50-60-cycle power supply and is crystal controlled.

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he pulled the street repair forces off their work for a short time necessary to do the airport work he would be in trouble. Certainly that was a possibility, but would it have been less trouble to him if he had taken the public into his confidence and told them what he was going to do before he did it, and why. We think so.

The whole thing comes down simply to this. In every city, town or county where there is a public airport some one or two people must take the lead and accept the responsibility for keeping the public advised as to what its airport is doing, how it is growing or why it is not, who uses it and how, the truth about accidents and what the prospects are. Occasionally, it is true, we have found a newspaperman who says that airports aren't news but for the most part the press is ready and waiting to get news if we will give it. There are a lot of other ways to get the airport before the public, in meetings, in schools and in gatherings of all sorts, but for the everyday run-of-the-mill fare for the reading and listening public there is nothing that takes the place of sustained press and radio efforts. It pays off in public acceptance.

Independent Airport Authority

QUESTION: Do you have any data available showing the success of an independent airport authority which we might use to prove the advantages of such control and operation of airport properties?

ANSWER: Yes. Perhaps the best example is the most recent report of the Tucson Airport Authority. This interesting Arizona development started three years ago. During the first three years the Authority showed a total profit of $376,000 despite a $23,000 loss the first year of operation. If you will write to Bob Schmidt, director of the Authority, Municipal Airport, Tucson, Arizona, we are sure he will send you his financial reports. His is one of the most eminently successful airport operations in the U. S. We would like to point out, however, that the Tucson Authority does not intend to amass huge profits as might be supposed by the remarkable profit record of its first three years. Rather, the Authority intends only to get on a solid financial foundation and through efficient operations provide airport facilities and services at reasonable cost to the public with a modest profit for the authority.

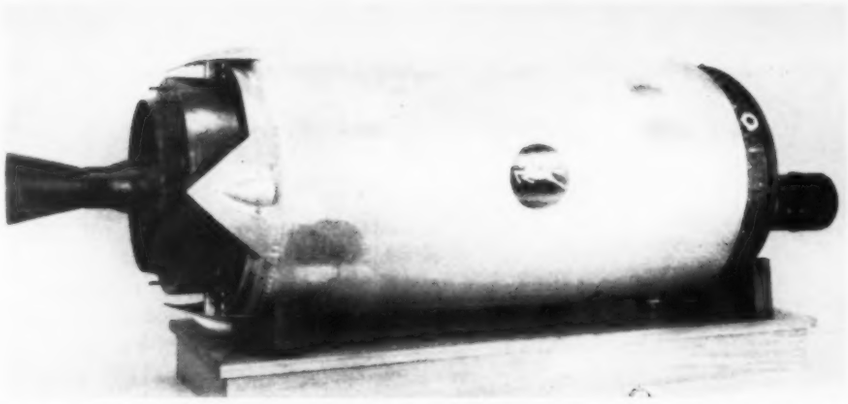
Military Use of Airports

QUESTION: With the U. S. Air Force appropriating the Wichita, Kansas, Municipal Airport for their exclusive use, providing an expensive brand-new field for the city in another location, and with other evidence of millions of dollars going into what might appear more "white elephant" fields, we wonder where it is going to end. Can't we get a more realistic policy in these matters?

ANSWER: The Airport Use Panel of the Air Coordinating Committee, Washington, D. C., approved on November 8, 1951, a set of general policies for implementing the current national defense effort as it affects the civil airport structure. These policies are:

1. The Federal government has reserved rights for the exclusive or non-exclusive use of many civil airports. Such use should be obtained with the

FOREIGN-BUILT PLANE FOR U. S. AIR FORCE is this de Havilland Beaver, shown being delivered by Philip C. Garratt, managing director, de Havilland Aircraft of Canada, Ltd. One of 109 Canadian-built Beavers purchased for the U. S. Army, the de Havilland is used as a liaison airplane and is designated as the L-20A.
—(de Havilland Photo.)



SMALL TURBO-JET ENGINE FOR NAVY AND AIR FORCE has been developed by Fairchild Engine and Airplane Corp. Designated the J-44, it produces 1,000 lbs. of thrust, is 6 ft. long, 22 ins. in diameter and weighs 325 lbs.

least possible disruption to civil aviation.

2. Federal funds and critical materials should not be expended for either the construction of airports or improvements, additions or replacements of facilities on airports unless these projects further the national defense effort or are essential to the national economy. The military and civil agencies shall be responsible for determining the needs of national defense and national economy in accordance with their statutory or other assigned responsibilities as they relate to their programs, after appropriate coordination with the Airport Use Panel has been effected.

3. Planning for military expansion should be coordinated so that civil aviation activities, which are essential to the nation's defense and economy, should not be unduly disrupted.

4. Where practicable, the joint usage of airports should be based upon a negotiated use agreement. The term "joint use" is not to be construed as a determination that either the civil or the military enjoy the position of landlord as opposed to tenant. The terms of each particular lease should specify the relationships of the joint users. At an airfield where joint usage is proposed, it may be expected, due to the security and safety of operation requirements, that the military will seek a complete separation of the ground operations of the civilian aviation activities from those of the military activities. Further, such an arrangement is subject to change in the event the international situation should, at any time, dictate the necessity for greater security measures.

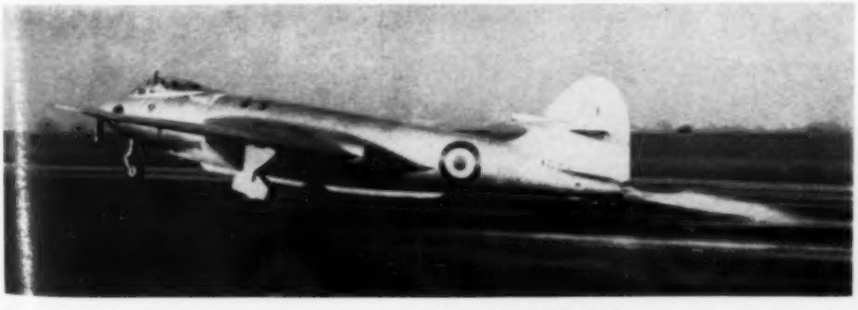
5. Military operations should be conducted at an airfield from which other operations are excluded when such military operations are determined to: (a) Be inherently extra hazardous; (b) Create a hazardous condition when combined with civil operations; (c) Saturate the air and/or ground space; (d) Require isolation for national security reasons, or where civil aviation operations would impair the ability of the military activity to properly perform its mission. The military should attempt to conduct such activities at existing military airports or on airports acquired expressly for military purposes.

6. Wherever practicable, facilities built during the period of emergency shall be planned and located to provide future use by the military including reserve components and/or civil aviation in order that duplicate expenditures may be avoided.

7. Construction programs for airport development which will create new airports or which will substantially change, expand or restrict existing airports, or which will have any effect on other airports should be coordinated with other appropriate agencies prior to submission of requests for appropriations.

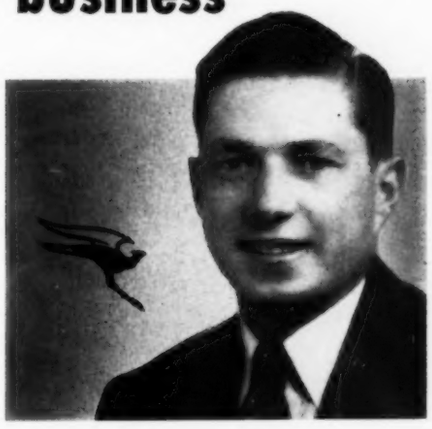
8. Facilities on civil airports required for aviation purposes and related activities should not be displaced by non-aviation activities.

★ ★ ★



LIQUID-FUEL ROCKET THAT CAN BE TURNED ON AND OFF is shown assisting this British Hawker P.1072's take-off. Mounted in tail cone, rocket has 2,000-lb. thrust.

Listen to a man who knows his business



DONALD ARMSTRONG *has been Qantas Empire Airways purchasing representative in the United States for the past four years.*

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CESSNA'S NEW 170B

(Continued from page 14)

at sea level in "normal air" and with maximum weight. Or you can begin your take-off run without flap and apply 20 degrees just as you reach about 45 mph.

Use of the flap for landing gives the 170B a very steep glide path, making possible shorter landings over an obstacle than is possible without flap. The Cessna flap can be lowered at speeds up to 100 mph. When the flap is lowered, your speed is slowed quickly and very effectively. Considerable forward or nose pressure or trim with the tab is necessary to maintain normal gliding speed. Despite the flap's large size and 40-degree angle, there is no blanketing out of the tail or elevator buffeting. With all that flap holding you back, you can point the nose very steeply down and still not build up excess speed. The angle of descent appears to be about 45 degrees or more with full flap while holding 70 mph. Then, the moment you level off, the big flap quickly kills off your speed and almost before you know it you are on the ground at about 45 mph. indicated air speed.

There is so much lift in the Cessna flap that pilots will want to develop a realistic appreciation of its effects. In winds above about 20 mph., for

SPECIFICATIONS AND PERFORMANCE
Cessna Model 170B

Cessna Aircraft Company Data	
Cruising Speed, mph.	Over 120
Top Speed, mph.	Over 140
Cruising Range, hrs.	Over 4
Fuel Capacity, gals.	42
Service Ceiling, ft.	15,500
Rate of Climb, sea level at gross weight, fpm.	690
Stall Speed, sea level, gross wt., power on, full flap, mph.	42
*Take-off Distance over 50-ft. obstacle, at 67 mph. with 20-degree flap (ground run about 38% of distance shown), sea level, gross weight, ft.	1,625
*Landing Distance over 50-ft. obstacle, at 67 mph. approach with 40-degree flap (roll 40% distance shown), sea level, gross weight, ft.	1,145
Empty Weight, lbs.	1,205
Gross Weight, lbs.	2,200
Useful Load, lbs.	995
Span, ft.	36
Length, ft.	25
Height, ft./ins.	6/7
Wing Area, sq. ft.	175
Wing Loading, lbs./sq. ft.	12.6
Power Loading, lbs./hp.	15.2

Engine and Propeller: 6-cylinder Continental C-145-2 rated at 145 hp. at 2,700 rpm. McCauley Met-L-Prop fixed-pitch metal propeller with spinner.

*Take-off and landing distances are for 60-degree F. outside air temperature. Both are given for zero wind and are reduced about 10 per cent for each 6-mph. wind velocity. Both are for hard-surfaced level runway.

example, this extra lift is not needed. What you want then is to get rid of lift. The wind was high when we flew the 170B. Coming in for a landing, we were watching the jet traffic off the paved runway too closely instead of concentrating on our turf landing just beyond the jet runway. Instead of 40 degrees of flap, we were using 30 degrees just to see how it worked. It worked too well. First the Safe Flight stall warner buzzed as our wheels went on. Then that huge flap sucked us right back up into the air. We were flying again. Then the stall warner buzzed and we went on again. It all went to prove that the flap was far too effective to use in a wind. In high wind or gusty air, the flap should not be used. Two hours earlier we had landed with full flap and very little wind at Hutchinson, Kansas. With wheel brakes vigorously applied the moment we touched down, we stopped within sixty or eighty feet.

The Cessna 170B can be landed over a 50-ft. obstacle in 1,145 ft. with almost half (40%) of this distance for roll—at sea level, no wind, gross weight, 67-mph. IAS approach and full flap. This is 610 ft. less than the predecessor Cessna 170A's landing distance over a 50-ft. obstacle.

Have you ever flown a fixed-wing airplane with indicated air speed at zero miles per hour and with aileron control? We did in the 170B. The trick was that, although the air speed indicator was working, it became ineffective at the extremely high angle of attack available with the new high-lift flap. At this angle, there isn't enough ram air in the pitot to give an air speed reading. In fact, the reading becomes inaccurate at about 40 mph. with full flap—at least it did with us.

It happened while we were acquainting ourselves with the stalling characteristics of the 170B. Bob Chatley, Cessna's public relations man, was with us and said, "Before doing a stall, let me show you how to hover." This we wanted to see in preference to stalls. At 100-mph., he lowered full flap and gradually lifted the nose. We looked for the stall at about 45, but nothing happened. Then the stall warner buzzed, but Bob held the wheel all the way back and the air speed indicator kept unwinding slowly down past 40, below 30, under 20 and finally started bumping zero. All the while, the stall warner was buzzing us. This must have lasted a couple of minutes as the 170B hung on the prop. Then the rate of climb indicator began unwinding and we were at the stall.

We still had ample aileron control

Not least among the reasons underlying owners' preference for planes with Continental power is the fact that Continental—and only Continental—provides the backing of established service wherever they may choose to fly. The need for such facilities is held to a minimum by sound engineering and rigid quality controls in manufacture; but even so, it's reassuring to know that you're never far from genuine parts and competent mechanics.

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NEW LINES FOR 1952 CESSNA MODEL 190 are provided by a revised color striping applied at the factory. Effect is to make the 190 appear longer. Interior has been made more attractive with colorful upholstering. This one was photographed at the factory. —(FLIGHT MAGAZINE Photo.)

to maintain level flight and, in fact, to roll it from side to side right at the stall. There was very little buffeting but anybody would be able to tell this was the stall. The Safe Flight stall warner works very well and its buzzer is not too loud. In our opinion, there is no reason for anybody ever to lose control of the 170B. There was no complete wing-tip stall at all, no tendency to fall off on either wing. We doubt if there is any airplane as stable as this one at the stall.

Stalling speeds of the Model 170B at gross weight are as follows: Power off, flap up, 58 mph.; power off, flap full down, 52 mph.; power on, flap up, 52 mph.; power on, flap full down, 42 mph.

Remarkable Stability

Since the high angle of the wing at very low speeds makes the air speed reading inaccurate, we asked the factory to specify the 170B's minimum slow-flight speed with full flap, without losing altitude or control. According to the test pilots, this minimum slow flight speed is between 40 and 45 mph., indicated, at gross weight.

Speaking of stability, the new model is so inherently stable you can do as well with rudder alone as with ailerons alone—without any dangerous skidding. At cruising speed, for example, we put the airplane into a 2-needle-width turn (about 30 degrees). Hands off, it stayed right there. Ordinarily, a stable airplane will resist such a turn and come out of it. But this Cessna is just as stable in a turn as it is in level flight. We rolled it into turns as effectively with rudder alone as with aileron alone, going from left to right with the ball only slightly off center. The ailerons and rudder are not interconnected.

Where formerly the 170A's elevator pressure was slightly heavier than that of other controls, the 170B's pressures are all equalized and are soft. This improvement was accomplished by shortening the chord of the elevator and increasing the balancing surface. In rough air the 170B should be very comfortable in contrast to airplanes which are not as stable.

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version, particularly in the air for a high-wing airplane. On the ground, visibility over the nose is comparable to that in a nose-wheel airplane.

Interior refinements include excellent soundproofing and comfortable upholstering. While Cessna advertises the 170B as the lowest-price all-metal 4-place airplane, it has an interior on the Cadillac scale. ★ ★ ★

JUST AMONG OURSELVES

(Continued from page 9)

of 543.169 miles, and the international altitude above sea level record for multi-place sailplanes of 38,305 feet. These world records were accomplished recently in craft designed by American experts without the aid of government assistance or "angels" from industry.

The national goodwill and prestige that can obtain from U. S. participation in this great event are limitless. It is a magnificent stage for us to explain and demonstrate how U. S. designs wrested the international distance record from the Russians, who held it for thirteen years. Technical papers presented at the meetings and results of the contests will be published all over the world.

Few U. S. officials recognize the world-wide interest in motorless flight. It has been sadly neglected in this nation, having been left to shift for itself with little or no official interest in or appreciation of its tremendous implications in helping to build an air-faring nation. Last summer the U. S. High Commissioner of Germany lifted the ban on motorless flight in Western Germany. On the opening day 50,000 people turned out to see the hodge-podge of German soaring ships (put together from remnants of buried pre-war designs) hold their first contest on the Wasserkuppe, where the teen-agers of Hitler's Germany learned to fly before ever getting behind a motor and formed the backbone of one of the most formidable air forces the world has ever known.

In this "jet-happy" age the U. S. is neglecting one of the most natural and one of the purest elements in the art and science of flight—gliding and soaring. But Russian military experts aren't making this mistake. It is reliably reported that some 100,000 Russian youths are training in the Red soaring movement, while U. S. kids have to stand outside the fence along the soaring sites of America and wish that they might participate. Our youngsters go to school and learn by rote instead of by doing—air education in this country is all right so long

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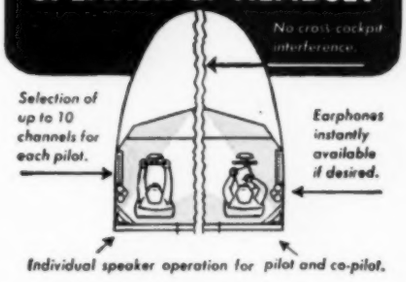
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as the kids keep one foot on the ground. What kind of flying generation is that going to build as against the young generation behind the iron curtain and in free Europe that's taking to the air like ducks to water?

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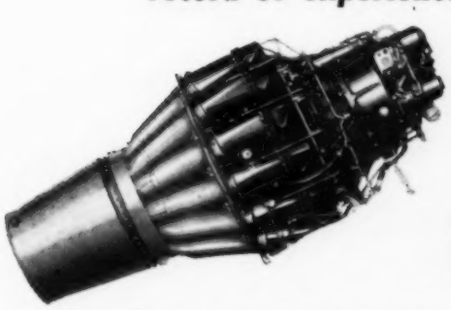
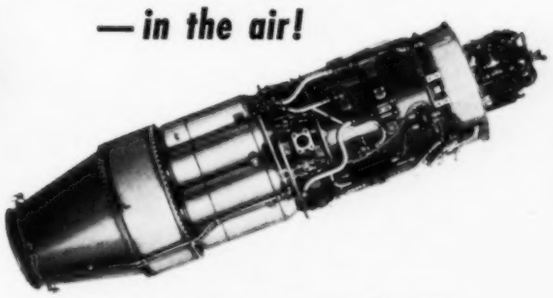


Allison J33 engine powering Lockheed Shooting Stars, F-94's and Grumman Panthers.



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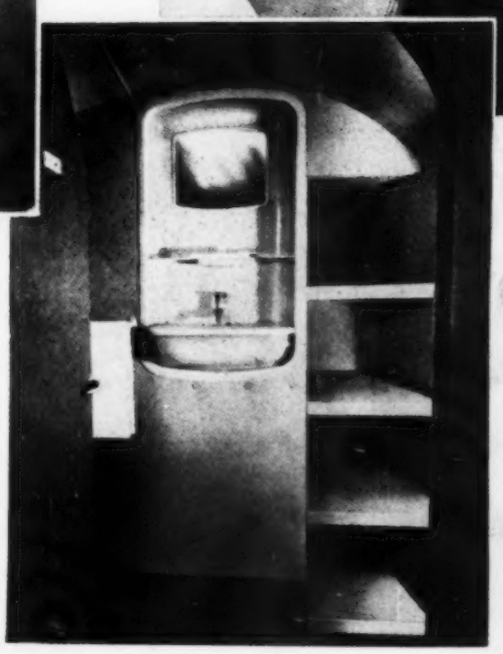

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